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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,401	12/10/2001	Dale K. Bell	60,130-1108/01MRA0212	4844

26096 7590 10/21/2002

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EXAMINER

SMITH, JULIE KNECHT

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/016,401

Applicant(s)

BELL, DALE K.

Examiner

Julie K Smith

Art Unit

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-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-17, drawn to race fastening means, classified in class 384, subclass 585.
- II. Claims 18-20, drawn to cage making, classified in class 29, subclass 898.067.

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the bearing cage may be made using another process such as machining.

During a telephone conversation with William S. Gottschalk on 16 October 2002, a provisional election was made without traverse to prosecute the invention of invention I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-20 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-12, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiter (4,203,635) in view of Johnston et al. (5,129,495).

Regarding claims 1, 2, 4-6 and 8-12, Reiter discloses a drive train assembly (see fig. 1) comprising a housing having an aperture (6) through a portion of said housing, a bearing cage (48), constructed of nylon, disposed in said aperture and secured to said portion, said cage including an opening therethrough, a driven shaft (26) including a shaft portion disposed in said opening and a bearing assembly (B) supporting the shaft portion in said cage, said bearing assembly including an outer race (40). Reiter is silent as to protrusions on said outer race. However, Johnston et al. teaches a bearing assembly including an outer race (see fig. 3) with a plurality of protrusions radially extending therefrom received in a cage preventing rotation of said outer race relative to said cage.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the bearing assembly of Reiter with the teachings of Johnston et al. to provide protrusions on the outside of a race, so as to provide securing means between the race and a cage to prevent rotation between the race and cage, thus reducing friction within the bearing assembly.

Regarding claims 3 and 12, Reiter discloses a unitized bearing assembly including spaced apart inner races (42,44) each supporting a set of rolling bearing elements (46) and a common outer race (40) supporting both sets of rolling bearing elements.

Regarding claims, 14-17, Reiter discloses the driven shaft being an input shaft, output shaft, through shaft and axle shaft.

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4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reiter in view of Johnston et al. as applied to claims 1-6, 8-12, 14 and 16 above, and further in view of Takemura et al. (2001/0017174).

Regarding claim 7, Reiter discloses a bearing assembly wherein the cage is constructed of nylon, but does not disclose a cage constructed from a metal matrix. However, Takemura et al. teaches bearing parts being made of aluminum and silicon carbide. Although Takemura does not teach a cage being made of a metal matrix of aluminum and silicon carbide, he does teach other bearing parts being constructed with said metal matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cage of Reiter with the teachings of Takemura et al. to construct a bearing cage out of aluminum and silicon carbide so that the cage can withstand the high temperatures and high vibrations produced by a drivetrain assembly.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reiter in view of Johnston et al. as applied to claims 1-6, 8-12, 14 and 16 above, and further in view of Nippon (JP 11247848).

Regarding claim 13, Reiter does not disclose the driven shaft being a pinion shaft. However, Nippon (JP 11247848) teaches a driven shaft being a pinion shaft (see fig. 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the assembly of Reiter with the teachings of Nippon as it is old and well known in the art to use bearing assemblies on pinion shafts.

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,501,533 to Williams et al.

5,590,571 to Tsuji

6,293,704 to Gradu

3,790,238 to Otto

4,427,242 to Otto

4,085,984 to Cameron

6,135,643 to Hattori et al.

4,136,916 to Musselman et al.

5,527,114 to Morita

5,944,489 to Vaughn et al.

5,971,617 to Woelki et al.


6,072,661 to Schirle

6,129,533 to Brandt et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie K Smith whose telephone number is 703-305-3948. The examiner can normally be reached on Monday-Friday, 8-5:30, (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on 703-308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

JKS

jks

October 17, 2002